

**WHAT IS CLAIMED IS:**

1. A sensor array having an active side and comprising:

at least one sensor on the active side configured to produce a signal when a particular form of energy is detected; and

a positioning structure on the active side essentially transparent to the particular form of energy, said positioning structure comprising a plurality of spaced compressible posts or tubes configured to compressively and frictionally engage with a complementary mounting structure.

2. A sensor array in accordance with Claim 1 wherein said at least one sensor comprises an x-ray scintillation detector.

3. A sensor array in accordance with Claim 2 wherein said positioning structure comprises molded plastic.

4. A sensor array in accordance with Claim 2 wherein said positioning structure comprises rubber.

5. A sensor array in accordance with Claim 2 wherein said positioning structure comprises acrylonitrile-butadiene-styrene (ABS).

6. A sensor array in accordance with Claim 2 wherein said positioning structure comprises graphite.

7. A sensor array in accordance with Claim 2 wherein said positioning structure comprises aluminized graphite.

8. A sensor array in accordance with Claim 1 wherein said positioning structure is glued onto the active side.

9. A sensor array in accordance with Claim 8 wherein said positioning structure does not extend beyond edges of the active side of said detector array.

10. A sensor array in accordance with Claim 1 wherein said at least one sensor comprises a plurality of x-ray scintillation detectors, and said positioning structure further comprises at least one collimator blade.

11. A sensor array in accordance with Claim 10 wherein said positioning structure comprises molded plastic.

12. A sensor array in accordance with Claim 1 wherein said positioning structure is affixed to the active side of the sensor array.

13. A detector array kit comprising:

at least one sensor array having an active side and comprising at least one sensor on the active side configured to detect a particular form of energy, said at least one sensor array further comprising a positioning structure on the active side that is essentially transparent to the particular form of energy, said positioning structure comprising a plurality of spaced compressible posts or tubes configured to compressively and frictionally engage with a complementary mounting structure; and

a complementary mounting structure essentially transparent to the particular form of energy.

14. A detector array kit in accordance with Claim 13 wherein said detector array is an x-ray detector array.

15. A detector array kit in accordance with Claim 14 wherein said positioning structure and said complementary mounting structure comprise molded plastic.

16. A detector array kit in accordance with Claim 14 wherein said positioning structure comprises acrylonitrile-butadiene-styrene (ABS).

17. A detector array kit in accordance with Claim 14 wherein said positioning structure comprises rubber.

18. A detector array kit in accordance with Claim 14 wherein said positioning structure comprises graphite.

19. A detector array kit in accordance with Claim 14 wherein said positioning structure comprises aluminized graphite.

20. A detector array in accordance with Claim 13 wherein said at least one sensor array is compressively and frictionally mounted on said complementary mounting structure.

21. A detector array kit in accordance with Claim 13 wherein said complementary mountings structure is configured to mount a plurality of rows and a plurality of columns of said sensor arrays.

22. A detector array kit in accordance with Claim 21 wherein said plurality of rows and plurality of columns of said sensor arrays are compressionally and frictionally mounted on said complementary mounting structure.

23. A detector array kit in accordance with Claim 13 wherein said positioning structure is affixed to the active side of the sensor array.

24. A detector array kit comprising:

a plurality of sensor arrays each having an active side and comprising at least one sensor on the active side configured to detect a particular form of energy, said sensor arrays each further comprising a positioning structure on the active side that is essentially transparent to the particular form of energy, said positioning structure comprising a plurality of spaced compressible posts or tubes configured to compressively and frictionally engage with a complementary mounting structure; and

a unitary complementary mounting structure essentially transparent to the particular form of energy and having a plurality of planar segments that meet at angles.

25. A detector array kit in accordance with Claim 24 wherein said detector array is an x-ray detector array.

26. A detector array in accordance with Claim 25 wherein said sensor arrays are compressively and frictionally mounted on said complementary mounting structure.

27. A detector array in accordance with Claim 26 having a plurality of both rows and columns of sensor arrays.

28. A computed tomographic imaging apparatus comprising:

a rotating gantry;

an x-ray source on the rotating gantry configured to project an x-ray beam through an object being imaged;

a table configured to support the object in the x-ray beam; and

a detector array on the rotating gantry configured to detect x-rays passing through the object, said detector array comprising

a plurality of sensor arrays each having an active side and comprising at least one x-ray sensor on the active side configured to detect x-rays, said sensor arrays each further comprising a positioning structure on the active side that is essentially transparent to the particular form of energy, said positioning structure comprising a plurality of spaced compressible posts or tubes configured to compressively and frictionally engage with a complementary mounting structure; and

a unitary complementary mounting structure essentially transparent to x-rays and having a plurality of planar segments that meet at angles.

29. An apparatus in accordance with Claim 28 wherein said unitary complementary mounting structure has a plurality of planar segments that meet at angles.

30. An apparatus in accordance with Claim 29 wherein said detector array comprises both a plurality of rows and a plurality of columns of said sensor arrays.

31. A method for repairing a detector array comprising:

disengaging a first sensor array having an active side and at least one sensor on the active side configured to produce a signal when a particular form of energy is detected, and a positioning structure on the active side that is essentially transparent to the particular form of energy, said positioning structure comprising a plurality of spaced compressible posts or tubes compressively and frictionally engaged with a complementary mounting structure essentially transparent to the particular form of energy; and

compressively and frictionally engaging a second sensor array in place of the first sensor array.

32. A method in accordance with Claim 31 wherein said detector array is in a computed tomographic imaging apparatus.

33. A method in accordance with Claim 31 wherein said detector array is an x-ray detector array.